

CLAIMS

I claim:

1. An anthropomorphic phantom for use with ultrasonic imaging procedure training, comprising;
 - a. phantom body made of an chemical composition capable of being heated and poured into a primary mold to form a simulated human anatomical structure, said chemical composition when cooled to room temperature being self-sealing when punctured;
 - b. a scattering agent suspended into said chemical composition to simulate the sonographic characteristics of a human anatomical structure; and,
 - c. at least one blood vessel simulating conduit formed inside said phantom body.
2. The phantom as recited in Claim 1, wherein said chemical composition is made of thermoplastic elastomers that are heated, mixed together and then poured into said primary mold.
3. The phantom as recited in Claim 2, wherein said thermoplastic elastomers include at least two elastomers from the following group: styrene, ethylene, butylenes, styrene, and triblock.
4. The phantom as recited in Claim 3, wherein said thermoplastic elastomers are mixed in a 60:30 ratio.
5. The phantom as recited in Claim 1, wherein said scattering agent is talcum powder.

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- 6. The phantom as recited in Claim 1, wherein said scattering agent is glass beads.
- 7. The phantom as recited in Claim 2, wherein said scattering agent is talcum powder.
- 8. The phantom as recited in Claim 2, wherein said scattering agent is glass beads.
- 9. The phantom as recited in Claim 1, further including a pigment mixed with said thermoplastic elastomers.
- 10. The phantom as recited in Claim 5 further including a pigment added to said chemical composition.
- 11. The phantom as recited in Claim 6, further including a pigment added to said chemical composition.
- 12. The phantom as recited in Claim 1, further including at least one cavity formed inside said phantom that simulates an internal anatomical cavity or structure.
- 13. The phantom as recited in Claim 12, further including a substance placed inside said cavity that simulates an anatomical substance in an anatomical cavity during an ultrasonic imaging procedure.

1 14. The phantom as recited in Claim 1, wherein said blood simulating blood vessel is
2 filled with substance that simulates anatomical fluid during an ultrasonic imaging procedure.
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4 15. The phantom as recited in Claim 14 wherein said blood vessel extends to the outer
5 surface of said phantom and includes a plug that is inserted into the open end of said blood
6 vessel to prevent said fluid from leaking from said vessel.
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8 16. A method of manufacturing an ultrasonic phantom, comprising the following steps:

9 a. forming a primary mold designed to cast a phantom body of an anatomical
10 object;

11 b selecting a suitable volume of a thermoplastic elastomer capable of being
12 heated to fill said primary mold;

13 c. heating the thermoplastic elastomer until fluidic;

14 d. selecting one or more sound scattering compounds capable of causing a
15 diffuse scattering pattern in said phantom during an ultrasonic imaging procedure;

16 e. mixing said scattering compounds in the melted said thermoplastic elastomer;

17 f. pouring the melted said thermoplastic elastomer and said scattering agent into
18 said primary mold;

19 g. allowing said mold to cool; and,

20 h. removing said phantom from said primary mold.
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22 17. The method of manufacturing an ultrasonic phantom as recited in Claim 16, further
23 comprising the step of placing a secondary mold inside said primary mold to form an internal

1 structure inside said phantom.

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3 18. The method of manufacturing an ultrasonic phantom as recited in Claim 17, further
4 comprising the step of removing said secondary mold from said phantom to form a hollow
5 cavity or conduit inside said phantom.

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7 19. The method of manufacturing an ultrasonic phantom, as recited in Claim 17, further
8 including the step of filling said hollow cavity or conduit with substance that simulates
9 natural substance is said cavity or conduit during an ultrasonic imaging procedure.

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